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ABSTRACT

To improve vocational educational programs in agriculture, occupational information on a common core of basic skills within the occupational area of the chemical applicator is presented in the revised task inventory survey. The purpose of the occupational survey was to identify a common core of basic skills which are performed and are essential for success in the occupation. Objectives were accomplished by constructing an initial task inventory to identify duty areas and task statements for the occupation. The initial task inventory was reviewed by consultants in the field, and 199 tasks were identified. A random sample of 75 businesses applying chemicals for agricultural purposes based on the 1975 Ohio Pesticide Applicators and Operators directory was obtained. Data were collected utilizing employer and employee questionnaires. Fifty questionnaires were returned of which 47 were usable. A compilation of basic sample background information is presented on size of business, total work experience, employment at current job, and preparation as a chemical applicator. A compilation of duty areas of work performed and work essential for the occupation is given. Percentage performance by incumbent workers and the average level of importance of specific task statements are presented in tabular form. (Author/EC)

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DETERMINATION OF A COMMON CORE OF BASIC SKILLS IN AGRIBUSINESS AND NATURAL RESOURCES

An Emperical Determination Of Tasks Essential To Successful Performance As A Chemical Applicator

DEPARTMENT OF AGRICULTURAL EDUCATION
THE OHIO STATE UNIVERSITY
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AN EMPERICAL DETERMINATION OF TASKS ESSENTIAL TO SUCCESSFUL PERFORMANCE AS A CHEMICAL APPLICATOR

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FOREWORD

The Department of Agricultural Education at The Ohio State University is involved in a major programmatic effort to improve the curricula in educational programs in agriculture. One product in this effort is this report of the chemical applicator task inventory survey. The data reported were collected as part of a more comprehensive thrust designed to develop a common core of basic skills in agribusiness and natural resources.

It is hoped that the revised task inventory contained in this report will be useful to curriculum developers working for improved occupational relevance in schools. Twenty-seven additional inventories in other occupational areas are also reported from this project.

The profession owes its thanks to Daniel R. Miller, graduate research associate, for his work in preparing this report. Special appreciation is also expressed to George G. Greenleaf, Executive Vice-President, Ohio Grain, Feed, and Fertilizer Association, Inc., for his input and help in securing the cooperation of those employed in this occupational area.

J. David McCracken
Project Director

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INTRODUCTION

Occupational information is needed to develop and revise vocational and technical education curricula. Teachers and curriculum developers generally determine which skills might be taught in a program based upon teacher expertise, advisory committee input, informal and formal community surveys, and/or task inventories.

The Agricultural Education Department at The Ohio State University has utilized and revised a system for obtaining and using occupational information as an effective aid in planning, improving, and updating occupational education curricula. This report presents the results of a task analysis survey of the occupation, chemical applicator. The information contained herein may be used by curriculum development specialists, teachers, local and state administrators, and others involved in planning and conducting vocational and technical programs in agriculture.

Purpose and Objectives

The major purpose of the occupational survey was to identify the skills which are performed and essential for success as a chemical applicator. The specific objectives of this survey were as follows:

1. Develop and validate an initial task inventory for the chemical applicator.
2. Identify the specific tasks performed by the chemical applicator.
3. Determine the relative importance of the specific tasks to successful employment as a chemical applicator.

Definition of the Occupational Area

The chemical applicator works in retail outlets that provide services directly to the public. The specific duties performed by the chemical applicator will vary by the size and type of business. The chemical applicator is primarily involved with preparing and applying chemicals. In some instances, the chemical applicator may be involved in selling chemicals to the public. In general, the chemical applicator follows safety precautions and legal regulations relating to chemical use; stores and warehouses chemicals and carrier materials; operates, services, and maintains application equipment; mixes and prepares chemicals; and applies chemicals. The chemical applicator may also be called a chemical equipment operator.

METHODOLOGY

Objectives were accomplisned by constructing an initial task inventory, validating the initial inventory, selecting a sample of workers, collecting data, and analyzing data.

Initial Task Inventory

Duty areas and task statements for the chemical applicator were identified by searching existing task lists, job descriptions, curriculum guides, and reference publications. Additionally, contacts with several industry personnel aided in clarifying the specific responsibilities of the chemical applicator. All the tasks that the project staff thought to be performed were assembled into one composite list.

The initial tasks were grouped into functional areas called "Duties".

After the task statements were grouped under the proper duty areas, each task statement was reviewed for brevity, clarity, and consistency. In all, 221 task statements were included in the initial task inventory.

Initial Inventory Validation

After the initial task inventory was constructed, it was reviewed by ten consultants employed in agricultural firms applying chemicals for customers.

The consultants were asked to respond to the initial task list inventory by performing the following activities.

1. Indicate whether any of the tasks listed were not appropriate.

2. Add any additional tasks they believed were performed by the chemical applicator.

3. Make changes in the wording of tasks to help add clarity to the statements.

The comments from the ten consultants were pooled and revisions were made as needed. Two new duty areas were added and three duty areas were combined with existing duty areas.

As a result of the initial task inventory review process, 199 tasks were identified.

Worker Sample Selection

Since the specific duties and tasks performed by the chemical applicator are related to the size and type of business where employed, an attempt was made to survey chemical applicators employed in various sizes and types of businesses. It was not possible to secure a list of the specific names and addresses of all incumbent workers in the state. Therefore, a sample of 75 businesses applying chemicals for agricultural purposes was obtained from the 1975 Ohio Pesticide Applicators and Operators directory using a stratified random sampling approach. The strata used were type of business and geographical location.

Data Collection

A packet of materials was sent to the owner or manager of the randomly selected agricultural chemical application firms. The packet of materials included:

1. A cover letter from the Ohio Grain, Feed, and Fertilizer Association, Inc.
2. An employer qu[illegible]naire printed on blue.
3. An employee ques[illegible] printed on yellow.
4. A stamped and self-addressed return envelope.

The manager or owner was instructed to complete the employer questionnaire and to have a responsible chemical applicator complete the employee questionnaire. The manager or owner was instructed to collect the employee questionnaire and return both the employer and employee questionnaire in the stamped and self-addressed return envelope by the date specified in the cover letter.

A follow-up of non-respondents consisted of mailing a packet of materials two weeks after the initial mailing. The follow-up consisted of a packet of materials identical to the initial packet except that a cover letter on Ohio State University stationery replaced the cover letter on Ohio Grain, Feed, and Fertilizer Association, Inc. stationery.

Data Analysis

The 50 questionnaires which were returned were checked for completeness and accuracy by the project staff. Information from the 47 usable responses was coded on Fortran coding sheets for key punching. In addition to coding appropriate respondent background information, each specific task statement was coded as to whether it was performed (1 = Task performed by respondent; blank = Task not performed by respondent) and the level of importance of the task (3 = Essential; 2 = Useful; 1 = Not Important). The information was keypunched on IBM cards and verified by personnel at the Instruction and Research Computer Center at The Ohio State University.

The data was analyzed using the SOUPAC computer program and the facilities of the Instruction and Research Computer Center. Consultant assistance for analyzing the data was provided by personnel at The Center for Vocational Education. The SOUPAC computer analysis resulted in the computation of relative

frequencies, means, and rankings for each task statement. The results of the computer analyses were printed in tabular form for ease of interpretation.

FINDINGS

Objectives of the study resulted in the compilation of basic sample background information, the determination of tasks performed by the chemical applicator, and the identification of tasks essential to successful performance as a chemical applicator.

Description of the Sample

Information regarding the performance of tasks and the importance of the tasks to successful employment as a chemical applicator was obtained from chemical applicators in various businesses across Ohio.

Response to the Survey

A total of 75 questionnaires were mailed and 50 replies were received. This represented a 66.7% rate of return. The response to the questionnaire is summarized in TABLE I.

TABLE I

EMPLOYEE RESPONSE TO THE QUESTIONNAIRE

	N	Percent of All Employees In The Survey
Employees in Survey	75	100.0
Total Returns	50	66.7
Usable Returns	47	62.7
Unusable Returns	3	4.0
Nonrespondents	25	33.3

Size of Business

Chemical applicators from various size businesses were included in the study. The number of full-time equivalent (two one-half time chemical applicators equal one full-time equivalent) chemical applicators employed in the business was used

as an index to assess the size of business where the chemical applicator was employed. Of the 50 questionnaires received, 47 included information regarding the size of the business. TABLE II summarizes the responses to the question, "How many full-time equivalent chemical applicators are employed in your business?" Nineteen chemical applicators or 40.4% were employed in firms employing one full-time equivalent chemical applicator. Eight chemical applicators or 17% were employed in firms employing two full-time equivalent chemical applicators. Eight chemical applicators or 17% were employed in firms employing three full-time equivalent chemical applicators. Thus, 74.4% of the chemical applicators were working in firms employing one to three full-time equivalent chemical applicators. The number of full-time equivalent chemical applicators employed in the firms ranged from 1-17. The average number of full-time equivalent chemical applicators employed in the firms was 2.8.

TABLE II

SIZE OF BUSINESS WHERE CURRENTLY EMPLOYED

Number of Chemical Applicators Employed in Firm	N	Percent of Respondents
1	19	40.4
2	8	17.0
3	8	17.0
4	6	12.8
5	3	6.4
6 or more	3	6.4
Total	47	100.0

$\bar{X}$ number of chemical applicators in the firm = 2.8

Total Work Experience

Chemical applicators with varying amounts of work experience in the chemical industry were included in the study. TABLE III summarizes the responses to the question, "How many total years have you worked in the chemical industry?" Seventeen chemical applicators or 36.2% had from seven to ten total years of work experience in the chemical industry. Nine chemical applicators or 19.1% had from 11-15 total years of work experience in the chemical industry. Eight chemical applicators or 17% had from one to three total years of work experience in the chemical

industry. The total years of work experience in the chemical industry ranged from 1-34 years. Chemical applicators had an average of 10.9 years of total work experience in the chemical industry.

TABLE III

TOTAL AMOUNT OF WORK EXPERIENCE IN THE CHEMICAL INDUSTRY

Years	N	Percent of Respondents
1-3	8	17.0
4-6	4	8.5
7-10	17	36.2
11-15	9	19.1
16-20	2	4.3
21-25	5	10.6
26 or more	2	4.3
Total	47	100.0

$\bar{X}$ years in the industry = 10.9

Employment at Current Job

Chemical applicators in the survey had spent varying amounts of time in their present job. TABLE IV summarizes the responses to the question, "How many years have you worked at your present job?" Fifteen chemical applicators or 31.9% had worked at their present job from one to three years. Thirteen chemical applicators or 27.7% had worked at their present job from 11-15 years. Seven chemical applicators or 14.9% had worked at their present job from four to ten years. The years of work at their present job ranged from 1-34 years. Chemical applicators had been employed at their present job an average of 10.2 years.

Preparation as a Chemical Applicator

Chemical applicators obtained training for their job from various sources. TABLE V summarizes their responses to the question, "Where did you receive your training as a chemical applicator?" Forty-four chemical applicators or 93.6% indicated they received training on-the-job. Eight chemical applicators or 17% indicated they attended a company school or course to

receive training as a chemical applicator. Eight chemical applicators or 17% indicated they had received training by attending a technical school program.

TABLE IV

LENGTH OF TIME AT PRESENT JOB

Years	N	Percent of Respondents
1-3	15	31.9
4-10	7	14.9
11-15	13	27.7
16-20	5	10.6
21-25	3	6.4
26 or more	4	8.5
Total	47	100.0

$\overline{X}$ years at present job = 10.2

TABLE V

SOURCE OF TRAINING RECEIVED AS A CHEMICAL APPLICATOR

Source	N	Percent of All Employees In The Survey
On-The-Job	44	93.6
High School Program	4	8.5
Technical School Program	8	17.0
College/University Program	3	6.4
Company School/Course	8	17.0
State Sponsored Course	4	8.5
Other	5	10.6

Duty Areas of Work Performed by the Chemical Applicator

The 199 tasks were grouped under 16 duty areas. Each respondent indicated whether he performed the specific task in his current position as a chemical applicator. The percentages of respondents performing each task were averaged for all tasks under each duty area. The mean percentage of incumbents who performed specific tasks in specified duty areas is presented in TABLE VI.

Duty areas of work in which 50% or more of the incumbent workers performed the tasks were:

1. Performing General Office Work
2. Inventorying Products
3. Following Legal Regulations in Chemical Operations
4. Observing Safety Procedures
5. Planning, Organizing, and Supervising Work
6. Selling and Marketing Chemicals and Other Merchandise
7. Storing and Warehousing Chemicals
8. Maintaining Chemical Operations Equipment and Vehicles
9. Using and Maintaining Hand and Power Tools
10. Operating Chemical Application Equipment and Vehicles
11. Controlling Insects and Diseases
12. Controlling Weeds
13. Assembling Chemical Operations Equipment
14. Insuring the Chemical Operation
15. Recording Information

Duty Areas of Work Essential for Successful Performance as a Chemical Applicator

A level of importance rating was obtained for each task. The respondent could rate the task as essential, useful, or not important for successful performance as a chemical applicator. A ranking of essential was assigned a numerical rating of "3", useful a numerical rating of "2", and not important a numerical rating of "1". The level of importance ratings for each task were averaged for all tasks under each duty area. The average level of importance ratings for the specific tasks in the specified duty areas are presented in TABLE VI.

Duty areas of work which received a 2.0 or higher level of importance rating by incumbent workers were:

1. Performing General Office Work
2. Inventorying Products
3. Following Legal Regulations in Chemical Operations
4. Observing Safety Procedures

5. Planning, Organizing, and Supervising Work
6. Selling and Marketing Chemicals and Other Merchandise
7. Storing and Warehousing Chemicals
8. Maintaining Chemical Operations Equipment and Vehicles
9. Using and Maintaining Hand and Power Tools
10. Operating Chemical Application Equipment and Vehicles
11. Controlling Insects and Diseases
12. Controlling Weeds
13. Maintaining Buildings and Structures
14. Assembling Chemical Operations Equipment
15. Insuring the Chemical Operation
16. Recording Information

Percentage Performance and Level of Importance Ratings of Specific Tasks

The percentage performance by incumbent workers and the level of importance for each specific task is also presented in TABLE VI.

It is recommended that the results for each specific task be examined by educators and others who are developing educational programs to determine curriculum content for preparing chemical applicators. Specific tasks with a high level of performance and a high level of importance rating should be given more emphasis in the educational program than specific tasks with a low level of performance and a low level of importance rating.

TABLE VI

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE * OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Performing General Office Work		
File business forms and records.	70	2.3
Meet people.	87	2.7
Use telephone.	82	2.4
Write memos, notes, and letters.	72	2.3
File technical publications.	57	2.2
Use two-way radio.	29	1.8
Complete job ticket for customers and state.	72	2.6
Mean Rating.	67.0	2.3
Recording Information		
Record information on work and job sheets.	76	2.7
Record customer order information.	72	2.6
Record accident report information	61	2.6
Record chemical application information.	85	2.9
Mean Rating.	72.0	2.7
Inventorying Products		
Assist in taking physical inventory.	82	2.4
Determine inventory on hand.	74	2.4
Mean Rating.	78.0	2.4
Following Legal Regulations in Chemical Operations		
Follow laws regarding notices of chemical application.	78	2.9
Obtain and renew chemical application license.	76	2.8
Follow laws regarding posting requirements	65	2.7
Determine if chemical is registered with Ohio Department of Agriculture.	68	2.7
Label chemical containers according to law	51	2.1
Follow laws for transporting economic poisons.	44	2.4
Identify records required by law	70	2.6
Identify insurance coverage needed by law.	76	2.6

*Average rating of importance may range from 1-3 with 3 being the highest

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Complete accident reports required by law.	61	2.7
Identify chemicals classified for restricted use	68	2.7
Follow laws regarding application of chemicals near specific locations	78	2.9
Follow legal requirements regarding user's permits for restricted chemicals.	78	2.9
Mean Rating.	67.7	2.7
Observing Safety Procedures		
Apply first aid to minor cuts, bruises, and burns.	63	2.6
Follow safe work habits.	85	2.8
Identify potential safety hazards.	76	2.7
Use fire extinguishers	65	2.5
Wear appropriate protective clothing	70	2.8
Ventilate work areas	61	2.5
Interpret information on labels and signs.	89	2.9
Use proper lifting and carrying methods.	68	2.4
Store inflammable materials.	59	2.4
Wear appropriate work clothes.	74	2.4
Dispose of chemical containers	74	2.8
Adjust safety shields and devices.	65	2.5
Install safety devices	57	2.3
Determine when climatic conditions provide unsafe work situations.	76	2.6
Correct potential safety hazards	72	2.6
Remove debris from work areas.	68	2.3
Dispose of excess chemicals.	57	2.4
Determine when a doctor should be contacted for chemical poisoning	53	2.7
Identify nearest poison control centers.	61	2.6
Clean up chemical spills	59	2.7
Recognize symptoms of injuries or poisoning from chemicals	55	2.6
Mean Rating.	67.0	2.4
Planning, Organizing, and Supervising Work		
Plan daily spraying schedules.	80	2.5

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Establish priorities on various jobs	72	2.3
Work with customers in establishing work dates	72	2.3
Organize custom spraying on region basis	53	1.9
Mean Rating	69.2	2.2
Selling and Marketing Chemicals and Other Merchandise		
Complete sales slip	68	2.3
Describe items to customers	76	2.3
Display materials for customers	53	2.0
Greet customers	70	2.3
Interpret customer requests into the manufacturer's product name	57	2.0
Label Merchandise and chemicals	53	2.0
Make change	55	1.9
Price products for customers	72	2.2
Take customer's order over telephone	72	2.4
Stock shelves	48	1.7
Interpret credit plan for customers	57	2.0
Operate billing machine	38	1.6
Operate cash register	44	1.6
Prepare advertising announcements	48	1.6
Determine if products requested are on hand	72	2.4
Handle customer complaints	72	2.3
Calculate discounts for customers	57	2.0
Identify seasonal items	59	2.1
Use sales catalogs and technical publications	68	2.2
Make in-store sales contact	57	2.0
Close a sale	68	2.2
Conduct a sales presentation	55	2.0
Estimate potential customer market	57	1.9
Recommend various products	74	2.3
Determine rental rates to charge customers for chemical application equipment	59	1.9
Determine custom application rates to charge customers	72	2.2
Mean Rating	60.8	2.0

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Storing and Warehousing Chemicals		
Remove damaged chemicals and chemical containers from storage.	70	2.5
Rotate chemicals in storage.	61	2.1
Control temperature in storage areas	48	2.2
Identify problems that might occur during storage.	63	2.3
Determine where materials should be stored	72	2.4
Clean debris from storage areas.	61	2.3
Use rodent control measures in storage areas	61	2.1
Label storage areas.	53	2.3
Store materials in order of use and season of use.	53	2.[illegible]
Determine amount of storage space needed	55	1.8
Determine storability of chemicals	68	2.1
Inspect storage areas.	70	2.1
Load and unload chemicals.	63	2.1
Lock warehouses and storage areas.	72	2.5
Mean Rating.	62.1	2.2
Maintaining Chemical Operations Equipment and Vehicles		
Add coolant to radiators	65	2.4
Add oil to equipment	70	2.6
Adjust carburetors	44	2.1
Bleed diesel fuel system	31	1.7
Change oil and oil filters	57	2.3
Change thermostats	46	1.9
Clean debris from equipment.	68	2.5
Grease equipment	63	2.5
Inflate tires.	65	2.5
Inspect cooling system for leaks	63	2.4
Install and adjust belts	59	2.3
Install and adjust chains.	53	2.1
Install and service battery.	59	2.2
Interpret maintenance instructions in operator's manuals	65	2.4
Repack bearings.	61	2.1
Replace and adjust spark plugs	53	2.2
Replace bearings and seals	53	2.2
Remove equipment from storage.	53	2.2
Replace radiator hoses	48	2.2
Replace universal joints	44	2.0

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Service air cleaners	59	2.4
Service fuel strainer, fuel filters, and sediment bowl	55	2.1
Prepare equipment for storage	61	2.3
Clean and oil electric motors	44	2.1
Lubricate nozzles, pump, and other moving parts to prevent corrosion	65	2.5
Replace damaged pulleys and sprockets	59	4.7
Clean screens and nozzle tips	65	2.6
Flush chemical applicator tanks, lines, and pump	68	2.7
Mean Rating	57.0	2.2
Using and Maintaining Hand and Power Tools		
Adjust tools	57	2.2
Clean tools	61	2.3
Identify tools	61	2.2
Interpret tool operation instructions	59	2.2
Recondition tools	48	1.8
Select tools for specific jobs	63	2.4
Store tools	63	2.1
Use hand tools safely	63	2.5
Use power tools safely	61	2.6
Mean Rating	59.5	2.2
Operating Chemical Application Equipment and Vehicles		
Interpret gauge readings on equipment	74	2.9
Operate equipment and vehicles on public highways	76	2.6
Adjust equipment safety shields	70	2.6
Connect front end operated equipment	42	1.9
Connect hydraulic systems and hydraulic operated equipment	65	2.4
Correct equipment safety hazards	70	2.7
Connect 3-point hitch equipment to tractors	48	1.9
Hitch towed equipment	63	2.3
Identify equipment safety hazards	72	2.6
Install safety shields and devices on equipment	61	2.4
Interpret hand operating signals	63	2.3

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Interpret safety and operating instructions in operator's manuals	70	2.5
Operate equipment under field conditions	72	2.6
Refuel power units	68	2.4
Use appropriate equipment and vehicles for specific jobs	70	2.6
Select correct field travel speed and PTO speed	71	2.7
Calibrate applicating equipment	80	2.8
Select correct type and size nozzles and tips	78	2.9
Adjust applicating equipment	76	2.8
Select proper application pressure	76	2.8
Identify factors that influence chemical effectiveness	78	2.7
Mean Rating	68.7	2.4
Controlling Insects and Diseases		
Determine amount of chemicals to apply	84	2.9
Determine when to apply chemicals	82	2.8
Evaluate influence of diseases and pests on crop production	71	2.6
Evaluate life cycle of insects to determine proper control procedures	60	2.3
Identify common diseases	69	2.4
Identify common insects	78	2.5
Identify damage caused by insects and diseases	76	2.5
Identify means by which diseases and insects are spread	69	2.3
Mix chemicals	80	2.7
Select appropriate chemicals to control insects and diseases	82	2.7
Use appropriate method to apply chemicals	82	2.8
Recommend mechanical insect and disease control procedures to customers	63	2.3
Inspect crops to determine when controls are needed	71	2.5
Distinguish between harmful and beneficial insects	67	2.4
Recommend appropriate insect and disease specialists to consult	67	2.4
Interpret chemical labels and compatability charts	86	2.8
Identify factors that influence chemical effectiveness	78	2.6
Calculate costs of chemical control of insects and disease	78	2.4
Recognize chemical injury	82	2.6
Select correct field travel and PTO speed for applying chemicals	76	2.8

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Calibrate application equipment.	82	2.7
Select correct type and size nozzles and tips.	76	2.8
Adjust applicating equipment	80	2.8
Select proper application pressure	78	2.7
Mean Rating.	75.7	2.5
Controlling Weeds		
Determine amount of chemicals to apply	89	2.9
Determine when to apply chemicals.	86	2.8
Evaluate influence weeds have on crop production	78	2.4
Identify common weeds and weed seeds	76	2.5
Inspect fields for weed problems and when control is needed. .	76	2.5
Mix chemicals.	76	2.7
Select appropriate chemicals to control weeds.	84	2.8
Use appropriate method to apply chemicals.	80	2.7
Recommend cultural and mechanical methods to control weeds . .	68	2.4
Interpret chemical labels and compatability charts	82	2.7
Evaluate life cycle of weed plants to determine appropriate control procedures.	59	2.3
Identify factors that influence chemical effectiveness	70	2.5
Recognize herbicide injury	78	2.6
Calculate costs of chemical controls	78	2.5
Select proper form to apply chemicals.	74	2.5
Select correct field travel and PTO speed for applying chemicals	78	2.8
Calibrate application equipment.	78	2.9
Select correct type and size nozzles and tips.	76	2.8
Adjust applicating equipment	76	2.8
Select proper application pressure	78	2.8
Mean Rating.	77.0	2.6
Maintaining Buildings and Structures		
Apply metal and wood preservatives	34	1.9
Reset circuit breakers	48	2.0
Replace electrical fuses	48	2.0
Replace light bulbs.	55	2.1

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Control weeds and grass around buildings	55	2.1
Mean Rating	48.0	2.0
Assembling Chemical Operations Equipment		
Adjust belts on equipment	63	2.4
Adjust chains on equipment	61	2.3
Adjust controls on equipment	63	2.4
Adjust safety shields on equipment	68	2.5
Check for missing equipment parts and hardware	63	2.4
Follow written assembly instructions	68	2.4
Inspect assembled equipment for operating defects	68	2.4
Interpret assembly diagrams	65	2.2
Interpret assembly instructions	65	2.2
Use proper equipment and tools to assemble equipment	65	2.3
Mean Rating	64.9	2.3
Insuring the Chemical Operation		
Determine the amount of insurance to carry	70	2.4
Determine the type of insurance to carry	70	2.5
Mean Rating	70.0	2.4